

Listing networks

```
PS C:\Users\Woysh\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> docker network ls
NETWORK ID          NAME                DRIVER             SCOPE
de9e32bb1faa        bridge             bridge             local
a3fc5a8b5d95        host              host              local
2da0ece8c413        none              null              local
PS C:\Users\Woysh\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking>
```

The default bridge network

```
PS C:\Users\Woysh\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> docker network inspect bridge
[
  {
    "Name": "bridge",
    "Id": "de9e32bb1faac6684c87396a7011e0db19ebba32fec9bafefbe087c033a90e31",
    "Created": "2021-06-22T08:04:33.4995783Z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": null,
      "Config": [
        {
          "Subnet": "172.17.0.0/16",
          "Gateway": "172.17.0.1"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": {},
    "Options": {
      "com.docker.network.bridge.default_bridge": "true",
      "com.docker.network.bridge.enable_icc": "true",
      "com.docker.network.bridge.enable_ip_masquerade": "true",
      "com.docker.network.bridge.host_binding_ipv4": "0.0.0.0",
      "com.docker.network.bridge.name": "docker0",
      "com.docker.network.driver.mtu": "1500"
    },
    "Labels": {}
  }
]
PS C:\Users\Woysh\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking>
```

Starting a ping container and inspect

```
PS C:\Users\Woysh\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> docker run --rm -d --name dummy rogue8200/ping:1.0
5f6220f1d475289bc56434835d67a9c15a1f576381b28e807159632e965fa6c4
PS C:\Users\Woysh\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> docker network inspect bridge
[
  {
    "Name": "bridge",
    "Id": "de9e32bb1faac6684c87396a7011e0db19ebba32fec9bafefbe087c033a90e31",
    "Created": "2021-06-22T08:04:33.4995783Z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": null,
      "Config": [
        {
          "Subnet": "172.17.0.0/16",
          "Gateway": "172.17.0.1"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": {
      "5f6220f1d475289bc56434835d67a9c15a1f576381b28e807159632e965fa6c4": {
        "Name": "dummy",
        "EndpointID": "6261c2177afa76fde1448cbf30732f02251f434dc57fc110e2d8ac5e18b33593",
        "MacAddress": "02:42:ac:11:00:02",
        "IPv4Address": "172.17.0.2/16",
        "IPv6Address": ""
      }
    },
    "Options": {
      "com.docker.network.bridge.default_bridge": "true",
      "com.docker.network.bridge.enable_icc": "true",
      "com.docker.network.bridge.enable_ip_masquerade": "true",
      "com.docker.network.bridge.host_binding_ipv4": "0.0.0.0",
      "com.docker.network.bridge.name": "docker0",
      "com.docker.network.driver.mtu": "1500"
    },
    "Labels": {}
  }
]
PS C:\Users\Woysh\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking>
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```
PS C:\Users\Woysh\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> docker run --rm -d -e PING_TARGET=172.17.0.2 --name pinger rogue8200/ping:1.0
b49a22d599fe232a30e9af3c801a3f8726dd9035ab9fe7d9bae939456583b
PS C:\Users\Woysh\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS   NAMES
b49a22d599fe   rogue8200/ping:1.0   "sh -c 'ping $PING_T..." 4 seconds ago   Up 4 seconds             pinger
5f6220f1d475   rogue8200/ping:1.0   "sh -c 'ping $PING_T..." 2 minutes ago   Up 2 minutes             dummy
PS C:\Users\Woysh\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> docker logs pinger
PING 172.17.0.2 (172.17.0.2) 56(84) bytes of data.
64 bytes from 172.17.0.2: icmp_seq=1 ttl=64 time=0.122 ms
64 bytes from 172.17.0.2: icmp_seq=2 ttl=64 time=0.041 ms
64 bytes from 172.17.0.2: icmp_seq=3 ttl=64 time=0.056 ms
64 bytes from 172.17.0.2: icmp_seq=4 ttl=64 time=0.036 ms
64 bytes from 172.17.0.2: icmp_seq=5 ttl=64 time=0.038 ms
64 bytes from 172.17.0.2: icmp_seq=6 ttl=64 time=0.038 ms
64 bytes from 172.17.0.2: icmp_seq=7 ttl=64 time=0.081 ms
64 bytes from 172.17.0.2: icmp_seq=8 ttl=64 time=0.043 ms
64 bytes from 172.17.0.2: icmp_seq=9 ttl=64 time=0.040 ms
64 bytes from 172.17.0.2: icmp_seq=10 ttl=64 time=0.036 ms
64 bytes from 172.17.0.2: icmp_seq=11 ttl=64 time=0.038 ms
64 bytes from 172.17.0.2: icmp_seq=12 ttl=64 time=0.038 ms
PS C:\Users\Woysh\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking>
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```
5f0220f1d475   rogue8200/ping:1.0   "sh -c 'ping $PING_T..." 3 minutes ago   Up 3 minutes             dummy
PS C:\Users\Woysh\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> docker run --rm -d -e PING_TARGET=dummy --name pinger rogue8200/ping:1.0
a31e38d5fd013ac0ee67c03e3d7b95b10c526f9d1bcad33bed0e9542f1576200
PS C:\Users\Woysh\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS   NAMES
5f6220f1d475   rogue8200/ping:1.0   "sh -c 'ping $PING_T..." 5 minutes ago   Up 5 minutes             dummy
PS C:\Users\Woysh\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking>
```

Managing Custom networks

```
5f0220f1d475   rogue8200/ping:1.0   "sh -c 'ping $PING_T..." 3 minutes ago   Up 3 minutes             dummy
PS C:\Users\Woysh\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> docker network create skynet
779eb1077645948ef0414637cc6429b4e57ae2226233fd9cb3964db8069f6acd
PS C:\Users\Woysh\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> docker network ls
NETWORK ID     NAME      DRIVER    SCOPE
de9e32bb1faa   bridge    bridge     local
a3fc5a8b5d95   host      host       local
2da0ece8c413   none      null       local
779eb1077645   skynet    bridge     local
PS C:\Users\Woysh\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> docker network inspect skynet
[
  {
    "Name": "skynet",
    "Id": "779eb1077645948ef0414637cc6429b4e57ae2226233fd9cb3964db8069f6acd",
    "Created": "2021-06-22T19:29:51.6406644Z",
    "Scope": "local",
    "Driver": "bridge",
    "EnableIPv6": false,
    "IPAM": {
      "Driver": "default",
      "Options": {},
      "Config": [
        {
          "Subnet": "172.18.0.0/16",
          "Gateway": "172.18.0.1"
        }
      ]
    },
    "Internal": false,
    "Attachable": false,
    "Ingress": false,
    "ConfigFrom": {
      "Network": ""
    },
    "ConfigOnly": false,
    "Containers": {},
    "Options": {},
    "Labels": {}
  }
]
PS C:\Users\Woysh\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking>
```

Adding containers to network

```
PS C:\Users\Woysh\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> docker run --rm -d --network skynet --name dummy rogue8200/ping:1.0
ccfeac77eda642413b13983762e5f503c2cc20ac63c07ab164a182a5e5442f12
```

Sadas

```

PS C:\Users\Woish\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> docker run --rm -d --network skynet -e PING_TARGET=dummy --name pinger rogue8200/ping:1.0
925f5835a46bad87dfed4d2965ecf985d119a3eddbd8e825f735a1318ed76ae3
PS C:\Users\Woish\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> docker logs pinger
PING dummy (172.18.0.2) 56(84) bytes of data:
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=1 ttl=64 time=0.175 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=2 ttl=64 time=0.088 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=3 ttl=64 time=0.063 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=4 ttl=64 time=0.074 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=5 ttl=64 time=0.175 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=6 ttl=64 time=0.106 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=7 ttl=64 time=0.044 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=8 ttl=64 time=0.067 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=9 ttl=64 time=0.031 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=10 ttl=64 time=0.042 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=11 ttl=64 time=0.044 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=12 ttl=64 time=0.057 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=13 ttl=64 time=0.047 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=14 ttl=64 time=0.041 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=15 ttl=64 time=0.038 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=16 ttl=64 time=0.046 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=17 ttl=64 time=0.061 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=18 ttl=64 time=0.045 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=19 ttl=64 time=0.048 ms
64 bytes from dummy.skynet (172.18.0.2): icmp_seq=20 ttl=64 time=0.114 ms
PS C:\Users\Woish\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking>

```

Connecting between containers in network

```

PS C:\Users\Woish\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> docker run --rm -d --name widgetdb -e POSTGRES_PASSWORD=password --network skynet -p 5432 postgres
9671ccc5623c43bd37a767bc2ab261f462b9088e92d6d2deee73318ea7ec3cc
PS C:\Users\Woish\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> docker run --rm -d --name gadgetdb -e POSTGRES_PASSWORD=password --network skynet -p 5432 postgres
2cc098487ab8ace2519f9d28a84daf4ef56488c3ce52b2c3170959598456aaf0
PS C:\Users\Woish\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> docker ps

```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
2cc098487ab8	postgres	"docker-entrypoint.s..."	4 seconds ago	Up 2 seconds	0.0.0.0:50206->5432/tcp	gadgetdb
9671ccc5623c	postgres	"docker-entrypoint.s..."	13 seconds ago	Up 11 seconds	0.0.0.0:50205->5432/tcp	widgetdb

```

PS C:\Users\Woish\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> docker exec -it widgetdb /bin/bash
root@9671ccc5623c:/# psql -U postgres
psql (13.3 (Debian 13.3-1.pgdg100+1))
Type "help" for help.

postgres=# \q
root@9671ccc5623c:/# exit
exit
PS C:\Users\Woish\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> docker stop widgetdb gadgetdb
widgetdb
gadgetdb
PS C:\Users\Woish\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking>

```

Binding ports to host

```

PS C:\Users\Woish\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> docker run --rm -d --name widgetdb -e POSTGRES_PASSWORD=password --network skynet -p 5432:5432 postgres
ebbbd3c714e7308fb763e51dc8afe22a908b84e74ba948345809f0b17d9fe53
PS C:\Users\Woish\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> docker ps

```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
ebbbd3c714e7	postgres	"docker-entrypoint.s..."	4 seconds ago	Up 1 second	0.0.0.0:5432->5432/tcp, :::5432->5432/tcp	widgetdb

```

PS C:\Users\Woish\Documents\AY_2020_2021\EEE_197\Week_10\ME8_Containerization_and_Docker\6-networking> psql -U postgres -h localhost

```